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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,871	04/14/2004	Pan-Tzu Chang	DF-05000	7070

7590 04/28/2005  
Haverstock & Owens LLP  
162 North Wolfe Road  
Sunnyvale, CA 94086

EXAMINER
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NGUYEN, JOSEPH H

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 04/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	Application No. 10/824,871	Applicant(s) CHANG ET AL.	
	Examiner Joseph Nguyen	Art Unit 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 April 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 1-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some    \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Election/Restrictions*

Applicant's election without traverse of claims 12-21 in the reply filed on 4/13/2005 is acknowledged.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 12-15, 17-19 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Chen (US 2003/0143772 A1).

Regarding claim 12, Chen discloses on figure 6C a light emitting diode, comprising a semiconductor structure for emitting light 104, 106, 108 (para [0023], lines 4-8); a transparent substrate 120 (para [0028], lines 3-5) formed on said semiconductor structure via a metal bonding layer 124 (para [0028], line 13) between said semiconductor structure and said transparent substrate; and a first electrode 130 (para [0030], line 3) and a second electrode 122 (para [0028], line 11) respectively formed on said semiconductor structure and said transparent substrate for providing a current to said semiconductor structure.

Note that Chen teaches the substrate is formed of SiC (para [0028], lines 3-5), and applicant teaches that the transparent substrate is formed of SiC (para [0021] of the instant application). Therefore, Chen teaches about the transparent substrate. Further, both elements 130 and 122 are formed of metal (para [0030], line 3 and para [0028], line 11) and therefore they can function as electrodes. Moreover, since metal 130 functions as n type electrode (para [0030], line 3. Chen teaches that metal 130 is n type ohmic contact, therefore metal 130 can function as n type electrode), metal 122 formed on the lowest end of the semiconductor device, opposite to metal 130, has to function as p type electrode as such the two electrodes can provide a current to the semiconductor structure.

Regarding claim 13, Chen discloses that said semiconductor structure is a light emitting diode structure (para [0028], line 1).

Regarding claim 14, Chen discloses that said light emitting diode structure is formed by a four-element material of AlGaInP (para [0028], line 1).

Regarding claim 15, Chen discloses that said transparent substrate is one selected from a group consisting of SiC (para [0028] lines 3-4).

Regarding claim 17, Chen teaches that the metal bonding layer 124 is AuBe (para [0028], lines 14-15).

Regarding claims 18-19, the claim language is merely product by process and therefore does not structurally distinguish from Chen herein.

Art Unit: 2815

Regarding claim 21, Chen teaches that the first electrode 130 and the second electrode 122 are respectively an N type electrode and a P type electrode (para [0030], line 3 and para [0028], line 11).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen and further in view of Sheu et al.

Regarding claim 16, Chen teaches that the transparent substrate is SiC (para [0028], lines 3-4). Chen does not teach the transparent substrate is GaP. However, Sheu et al. teaches that the substrate can be SiC or GaP (col. 3, lines 53-54). In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Chen by having the transparent substrate being GaP for the purpose of obtaining a specific application and design of a light emitting structure.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen.

Regarding claim 20, Chen teaches that the first electrode 130 and the second electrode are respectively an N type electrode and a P type electrode (para [0030], line

Art Unit: 2815

3 and para [0028], line 11). Chen does not teach the first electrode and the second electrode are respectively a P type electrode and an N type electrode. However, it is well known in the art that N type and P type can be interchanged, depending merely on certain application of a semiconductor device. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Chen by having the first electrode and the second electrode being respectively a P type electrode and an N type electrode for the purpose of obtaining a specific application and design of a light emitting structure.

### ***Conclusion***

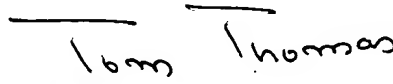
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Nguyen whose telephone number is (571) 272-1734. The examiner can normally be reached on Monday-Friday, 7:30 am- 4:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306 for regular communications.

Art Unit: 2815

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JN

April 25, 2005

  
TOM THOMAS  
SUPERVISORY PATENT EXAMINER